

# **COMPRESSIVE STRENGTH OF CYLINDRICAL CONCRETE SPECIMENS AASHTO T 22**

## **APPARATUS**

- [ ] Testing machine has a verification of calibration within the last 12 months
- [ ] Protective Cage

## **PROCEDURE -- SULFUR MORTAR CAPS**

- [ ] Diameter of test specimen determined to nearest 0.01 in. by averaging two diameters measured at right angles to each other at mid-height of specimen (shall not differ by more than 2%)
- [ ] Length of test specimen determined to nearest 0.05 x diameter when length to diameter ratio is less than 1.8 or more than 2.2
- [ ] Test specimens kept moist during the period between removal from moist storage and testing
- [ ] Lower bearing block placed, with hardened face up, on the table or platen of testing machine directly under the upper bearing block
- [ ] Faces of both bearing blocks and test specimen wiped clean, and test specimen placed on the lower bearing block
- [ ] Load indicator set to zero. If indicator is not properly set to zero, indicator is adjusted.
- [ ] As spherically-seated block is brought to bear on the specimen, movable portion of block is rotated gently by hand so that uniform seating is obtained.
- [ ] Load applied continuously and without shock
- [ ] For screw-type testing machines, the moving head is traveling at a rate of approximately 0.05 in./min when machine is running idle
- [ ] For hydraulically-operated testing machines, load applied at a rate of movement corresponding to a loading rate on the test specimen within a range of 20 to 50 psi/s
- [ ] Rate of movement maintained at least during the latter half of anticipated loading phase of testing cycle
- [ ] No adjustment in rate of movement of platen made at any time while specimen is yielding rapidly immediately before failure
- [ ] Load applied until test specimen fails
- [ ] Maximum load carried by test specimen during test recorded. Type of failure and appearance of concrete noted.
- [ ] Compressive strength of test specimen determined to nearest 10 psi as follows:

$$\text{Compressive Strength} = \frac{\text{Maximum Load}}{\text{Average Cross - Sectional Area}}$$

## AASHTO T 22

- [ ] Compressive strength corrected when specimen length-to-diameter ratio is less than 1.8 by multiplying by a correction factor as follows:

|         |      |      |      |      |
|---------|------|------|------|------|
| L/D:    | 1.75 | 1.50 | 1.25 | 1.00 |
| Factor: | 0.98 | 0.96 | 0.93 | 0.87 |

(Values not given in table are determined by interpolation)

### PROCEDURE -- NEOPRENE CAPS

- [ ] Extrusion controllers, containing neoprene caps, placed on the top and bottom surfaces of test specimen
- [ ] Axis of test specimen aligned with center of upper bearing block
- [ ] No loose particles trapped between test specimen and neoprene caps or between the bearing surfaces of extrusion controllers and bearing blocks
- [ ] Same surface of neoprene cap used for all tests with that cap
- [ ] Each neoprene cap used to test no more than 100 cylinders
- [ ] Procedure for testing same as procedure for testing cylinders with sulfur mortar caps except as noted within this section
- [ ] Concrete cylinder ends have no depressions deeper than 0.12 in.
- [ ] 6 in. diameter cylinders do not differ in height by 0.2 in. for any two measurements

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Acceptance Technician

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INDOT

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Date

Comments \_\_\_\_\_

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